

Geometry spiral review:

DISCLAIMER: These spiral review questions are just samples and can be changed/added at any time. The order that they come in is not necessarily the order that all Geometry teachers follow, so they have not been numbered. Rather, each has a topic highlighted at the top, to help the teacher in planning.

Also, most of the equations were created using MathType. Therefore, some formatting may be off. In some cases, a V is used to show the symbol for a triangle. This is just due to transferring from one computer to the next.

Name _____ Period _____

Warm-up 1

Logical thinking

Date _____ Score _____

1. Describe what could be changed in the following syllogism so that Frank would run on the track: *If Frank has his track shoes with him, the Frank is going to run on the track. Frank does not have his track shoes with him. Therefore, he will not run on the track.*

Write the following statement in If-Then form, then write the Converse, Inverse, and Contrapositive:

Frank has chalk on his hands because he has been playing pool.

2. If-Then:
3. Converse:
4. Inverse:
5. Contrapositive:

Name _____ Period _____

Warm-up 2

Angle Relationships

Date _____ Score _____

1. Draw an example of vertical angles (Label all relationships and lines).
2. If $\angle 1$ and $\angle 2$ are supplementary and $m\angle 1 = 45^\circ$, what is $m\angle 2$?
3. If $\angle 3$ and $\angle 4$ are complementary, and $m\angle 3 = 85^\circ$, what is $m\angle 4$?

4. Solve:
 $m\angle A = 35^\circ$
 $m\angle B = 2 * m\angle A$
 $m\angle A + m\angle B + m\angle C = 170^\circ$
 $m\angle C = ?$

5. Solve:
 $m\angle D = 20^\circ$
 $m\angle E = 3.5 * m\angle D$
 $m\angle D + m\angle E + m\angle F = 90^\circ$
 $m\angle F = ?$

Warm-up 3

Angle Relationships

Date _____ Score _____

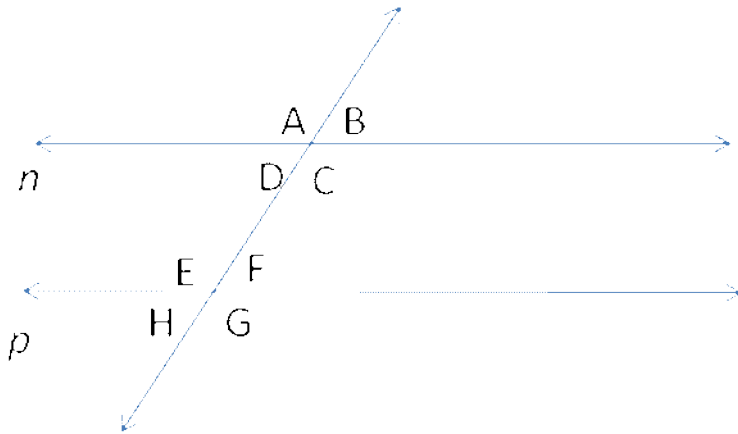
1. If $\angle 1$ and $\angle 2$ are supplementary, and $m\angle 1 = 32^\circ$, what is $m\angle 2$?
2. If $\angle 1$ and $\angle 2$ are complementary and $m\angle 1 = 8^\circ$, what is $m\angle 2$?
3.
If $\angle 3$ and $\angle 4$ are complementary, and $m\angle 3 = 32^\circ$, what is $m\angle 4$?
 $m\angle A = 40^\circ$
 $m\angle B = 4 * m\angle A$
4. Solve: $m\angle A + m\angle B + m\angle C = 65^\circ$
 $m\angle C = ?$
 $m\angle D = 75^\circ$
 $m\angle E = 0.4 * m\angle D$
5. Solve: $m\angle D + m\angle E + m\angle F = 70^\circ$
 $m\angle F = ?$

Name _____ Period _____

Warm-up 4

Parallel lines

Date _____ Score _____



1. If $\angle C \cong \angle G$, is $n \parallel p$?
2. Why or why not?
3. If $n \parallel p$ and $m\angle A = 120^\circ$, what is $m\angle E$?
4. What is $m\angle H$? (using the information from number 3)
5. Which angles are congruent to $\angle G$ if $n \parallel p$?

Name _____ Period _____

Warm-up 5

Midpoint

Date _____ Score _____

1. What is the midpoint between 30 and 54 on a number line?
2. What is the midpoint between -25 and 35 on a number line?
3. What is the midpoint between -40 and -24 on a number line?
4. What is the midpoint between (4, 10) and (16, 20)?
5. What is the midpoint between (-5, -18) and (11, -24)?

Warm-up 6

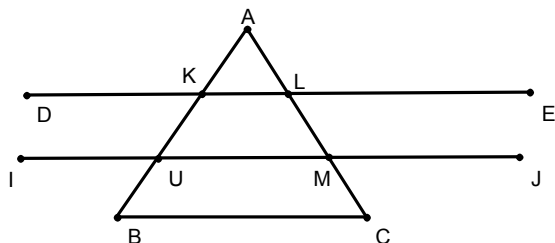
Parallel lines

Date _____ Score _____

$\triangle ABC$ is an equilateral triangle. $\overline{DE} \parallel \overline{IE} \parallel \overline{BC}$

For numbers 1-3, determine if the statement is true or false.

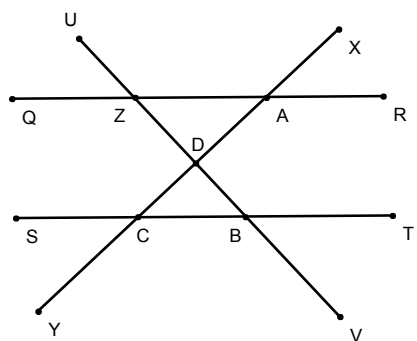
1. $\angle LMU \cong \angle ALK$
2. $\angle KUI \cong \angle MUB$
3. $\angle IUB \cong \angle ELM$
4. $m\angle ACB + m\angle IUB =$ _____
5. $m\angle AKD + m\angle AMU =$ _____



Warm-up 7

Parallel lines and angles

Date _____ Score _____



If $m\angle ADZ = 45$, and $\overline{QR} \parallel \overline{ST}$, and $\overline{UV} \perp \overline{XY}$

1. $m\angle UZQ + m\angle QZD =$ _____
2. $m\angle SCD + m\angle TBV =$ _____
3. $m\angle AZD + m\angle ZAD =$ _____

For numbers 4 and 5, determine if the statement is true or false:

4. $\angle XAR \cong \angle SCY$
5. $\angle DCB \cong \angle DBC$

Name _____ Period _____

Warm-up 8

Equations of lines (parallel)

Date _____ Score _____

Find the equation of a line parallel to the given line and that passes through the given point

1. $y = 2x + 8$ P(2, -4)

2. $y = \frac{3}{5}x - 2$ Q(10, -4)

3. $y = \frac{3}{2}x - 4$ R(4, 7)

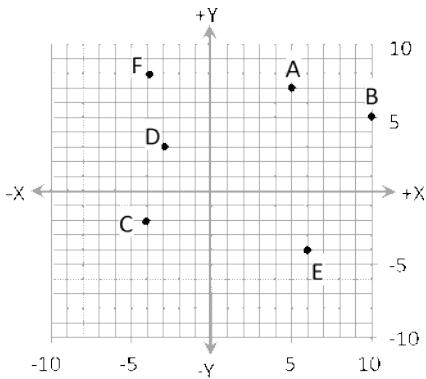
4. $y = -3x - 4$ S(-2, -8)

5. $y = \frac{-5}{6}x + 3$ T(-12, -1)

Warm-up 9

Slope

Date _____ Score _____



1. Find the slope of the line passing through A and D.
2. Find the slope of the line passing through B and C.
3. Find the equations of the line parallel to \overleftrightarrow{AD} and passes through point E.
4. Find the equation of the line perpendicular to \overleftrightarrow{AD} and passes through point F.
5. Are the lines from numbers 4 and 5 parallel, perpendicular, or neither?

Name _____ Period _____

Warm-up 10

Equations of lines (perpendicular)

Date _____ Score _____

Find the equation of the line perpendicular to the given line and passes through each given point.

1. $y = 2x + 8$ P(2, -4)

2. $y = \frac{3}{5}x - 2$ Q(9, -4)

3. $y = \frac{3}{4}x - 4$ R(6, 7)

4. $y = -3x - 4$ S(-3, -8)

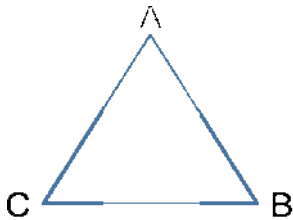
5. $y = \frac{-5}{6}x + 3$ T(-10, -1)

Name _____ Period _____

Warm-up 11

Triangles

Date _____ Score _____



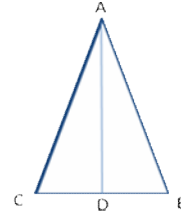
1. What is the sum of the angles of $\triangle ABC$?
2. If $m\angle A = m\angle B = m\angle C$, what kind of triangle is $\triangle ABC$?
3. According to number 2, what is $m\angle A$?
4. If $AB = 7$, what is BC ?
5. Using the above information, what is the perimeter of $\triangle ABC$?

Name _____ Period _____

Warm-up 12

Triangles

Date _____ Score _____



1. If $m\angle B = m\angle C$, what type of triangle is $\triangle ABC$?
2. If $m\angle A = 30$, what is $m\angle B$?
3. If $AB = 5$, what is AC ?
4. If $BC = 3$, what is the perimeter of $\triangle ABC$?
5. If $\overline{BD} \cong \overline{CD}$, what is the length of \overline{AD} ?

Name _____ Period _____

Warm-up 13

Special segments in triangles (constructions)

Date _____ Score _____

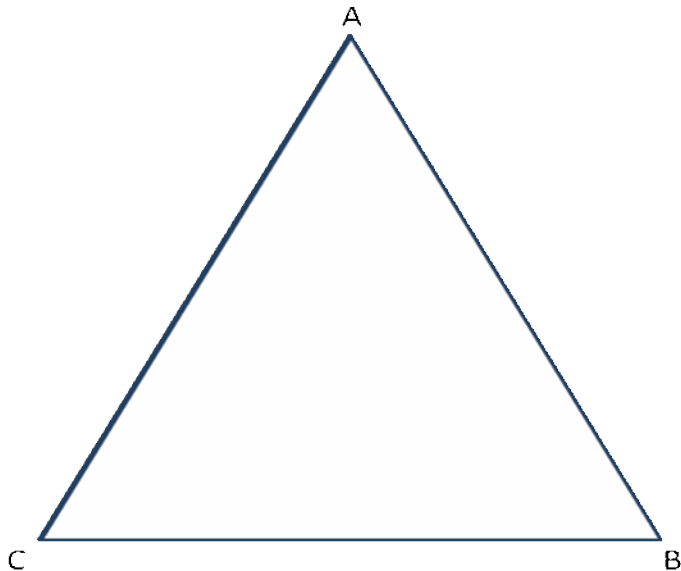
$\triangle ABC$ is a general triangle.

1. Construct the angle bisector for $\angle A$
2. Construct the perpendicular bisector of \overline{AB}
3. Construct the altitude from B to \overline{AC}
4. If $AB = 4$ and $CA = 5$, then BC lies between what two lengths?
5. If $m\angle A = 110$, and $m\angle B = 20$, then $m\angle C = ?$

Warm-up 14

Special segments in triangles (constructions)

Date _____ Score _____



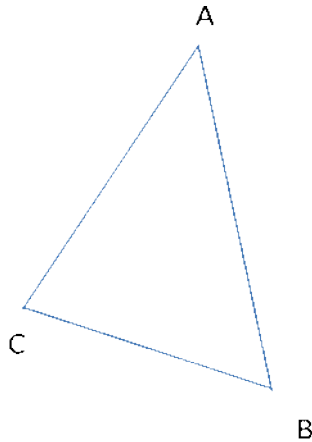
1. $\triangle ABC$ is an equilateral triangle. Construct the perpendicular bisectors of each side.
2. If $AB = 10$, what is the length of each of the perpendicular bisectors?
3. In this specific triangle, what are some other names for the perpendicular bisectors?

Warm-up 15

Special segments in triangles (constructions)

Date _____ Score _____

1. $\triangle ABC$ is an general triangle. Construct the angle bisectors of each angle.

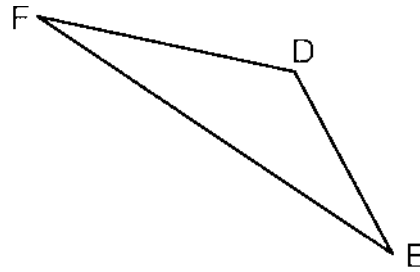
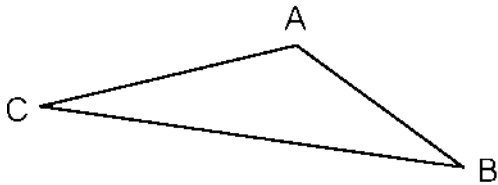


2. Construct the perpendicular bisectors of each side.
3. Construct the altitudes of each side.
4. If $AC = 4$, and $AB = 5$, between what two lengths must BC lie?
5. If $m\angle A = 42$, and the $m\angle C = 77$, what is $m\angle B$?

Warm-up 16

Triangle congruence

Date _____ Score _____

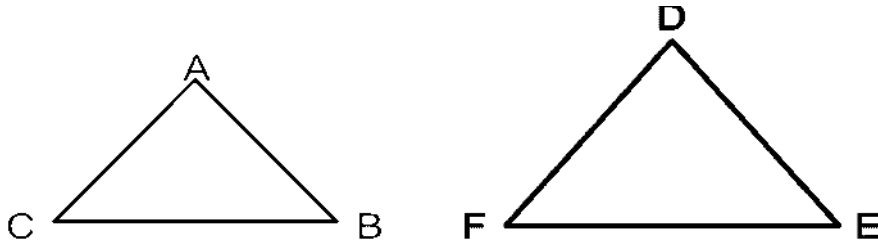


1. What would you need to know in order to show that $\triangle ABC \cong \triangle DEF$ by SSS?
2. What would you need to know in order to show that $\triangle ABC \cong \triangle DEF$ by SAS?
3. What would you need to know in order to show that $\triangle ABC \cong \triangle DEF$ by ASA?
4. What would you need to know in order to show that $\triangle ABC \cong \triangle DEF$ by AAS?
5. If all that you know is that $\angle A \cong \angle D$; $\angle B \cong \angle E$, and $\angle C \cong \angle F$
what can you state about the two triangles?

Warm-up 17

Triangle similarity

Date _____ Score _____

Assume that $\triangle ABC \sim \triangle DEF$:

1. What is true about each pair of corresponding angles?
2. If $BC = 2$, $EF = 3$, and $CA = 4$, how long is FD ?
3. If $AC = 5$, $DF = 10$, and $DE = 8$, how long is AB ?
4. If the ratio of AC to DF is $\frac{2}{5}$, and $CB = 10$, $EF = ?$
5. If the perimeter of $\triangle DEF$ is 35, and the scale factor of $\triangle ABC$ to $\triangle DEF$ is $\frac{3}{7}$, what is the perimeter of $\triangle ABC$?

Warm-up 18

Special right triangles

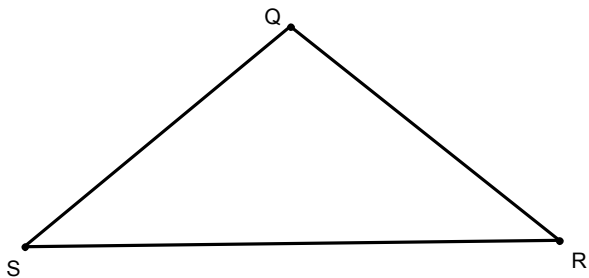
Date _____ Score _____

1. Assume that the hypotenuse of a 30-60-90 triangle is 14. What are the lengths of the other two sides?
2. Assume that $\triangle DEF$ is a 45-45-90 triangle. If $DE = 5$, how long is the other side?
3. How long is the hypotenuse?
4. Assume $\triangle GHI$ is a 30-60-90 triangle, with right angle H . If $GH = 3$ and $HI = 4$, how long is the hypotenuse?

Warm-up 19

More triangles

Date _____ Score _____



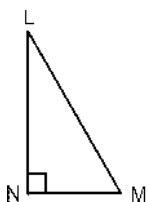
Assume that a roof truss can be represented as $\triangle QRS$ in isosceles triangle with $\overline{SQ} \cong \overline{QR}$, and $m\angle Q = 120$, and $RS = 30$.

1. How high is point Q with respect to side \overline{RS} ?
2. What is $m\angle R$?
3. What is $m\angle S$?
4. What is the length of \overline{QR} ?
5. What is the length of \overline{QS} ?

Warm-up 20

Right triangles

Date _____ Score _____



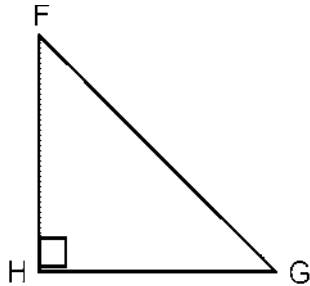
If $m\angle L = 20^\circ$ and $LM = 25$, find the following :

1. MN
2. $m\angle M$
3. LN
4. What is the perimeter of this triangle?
5. What is the area?

Warm-up 21

Right triangles

Date _____ Score _____



If $m\angle G = 35^\circ$, $FH = 16$, find:

1. FG
2. $m\angle F$
3. GH
4. What is the perimeter of $\triangle FGH$?
5. What is the area?

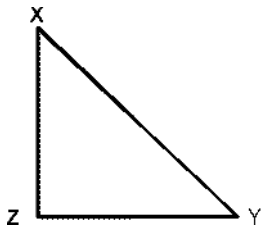
Warm-up 22

Right triangles

Date _____ Score _____

For numbers 1-3, assume $\triangle XYZ$ is a right triangle with right angle Z .

1. If $XZ = 6$ and $YZ = 8$, $XY = ?$
2. If $XZ = 7$ and $XY = 8$, $YZ = ?$
3. If $XY = 12$ and $YZ = 9$, $XZ = ?$



4. If $XZ = 6$, $YZ = 8$, and $XY = 14$, is $\triangle XYZ$ a right triangle?

5. If $XZ = 20$, $YZ = 15$, and $XY = 25$, is $\triangle XYZ$ a right triangle?

Name _____ Period _____

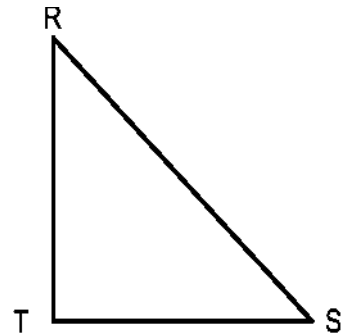
Warm-up 23

Right triangles

Date _____ Score _____

For numbers 1-3, assume $\triangle RTS$ is a right triangle with right angle T.

1. If $RS = 8$, and $ST = 2$, $TR = ?$
2. If $RS = 9$, and $TR = 7$, $ST = ?$
3. If $TR = 15$ and $ST = 22$, $RS = ?$
4. If $RS = 16$, $ST = 8$, and $TR = 2\sqrt{15}$, is $\triangle RTS$ a right triangle?
5. If $RS = 10$, $ST = 6$, and $TR = 8$, is $\triangle RTS$ a right triangle?

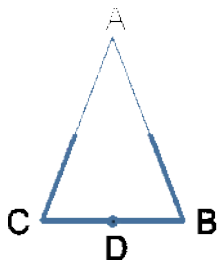


Name _____
Period _____

Warm-up 24

Triangles

Date _____ Score _____



1. If $m\angle B = m\angle C$, what kind of triangle is $\triangle ABC$?
2. If $m\angle A = 30$, what is $m\angle B$?
3. If $AB = 5$, what is AC ?
4. If $BC = 3$, what is the perimeter of $\triangle ABC$?
5. If $BD = DC$, what is the length of DA ?

Name _____

Period _____

Warm-up 25

Parallelograms

Date _____ Score _____



1. In parallelogram ABCD, name the pairs of angles that are congruent.
2. Name the sides that are congruent.
3. Name two angles that are supplementary.
4. What is true about the diagonals of this parallelogram?
5. Draw the diagonals. Show that $\triangle ABD \cong \triangle CDB$.

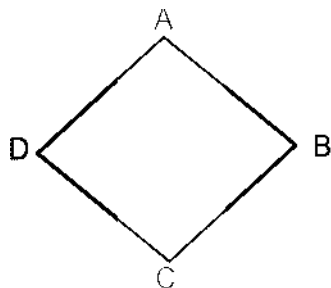
Name _____

Period _____

Warm-up 26

Rhombus

Date _____ Score _____



1. In the rhombus ABCD, name the pairs of congruent angles.
2. Name the sides that are congruent.
3. What is true about the diagonals of the rhombus?
4. Draw in the diagonals. Label the intersection point E.
What is true about the \overline{DE} , \overline{EB} , \overline{AE} , and \overline{EC} ?
5. Given: Rhombus ABCD with diagonal \overline{AC}
Prove: $\angle ABC \cong \angle ADC$

Name _____

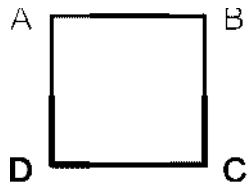
Period _____

Warm-up 27

Squares

Date _____ Score _____

1. In the square ABCD, name the pairs of congruent angles.
2. Name the sides that are congruent.
3. What is true about the diagonals of the square?
4. Draw in the diagonals. Label the intersection point E.



What is true about the \overline{DE} , \overline{EB} , \overline{AE} , and \overline{EC} ?

5. Given: Square ABCD with diagonals \overline{AC} and \overline{BD}

Prove: $\triangle AEB \cong \triangle BEC \cong \triangle CED \cong \triangle DEA$

Name _____

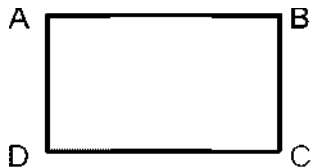
Period _____

Warm-up 28

Rectangles

Date _____ Score _____

1. In the rectangle ABCD, name the pairs of congruent angles.
2. Name the sides that are congruent.
3. What is true about the diagonals of the rectangle?
4. Draw in the diagonals. Label the intersection point E.



What is true about the \overline{DE} , \overline{EB} , \overline{AE} , and \overline{EC} ?

5. Given: Rectangle ABCD with diagonals \overline{AC} and \overline{BD}

Prove: $\triangle AEB \cong \triangle CED$

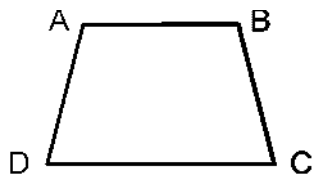
Name _____

Period _____

Warm-up 29

Trapezoids

Date _____ Score _____



1. In the trapezoid ABCD, what would need to be true for it to be an isosceles trapezoid?
2. Assume that ABCD is an isosceles trapezoid. Which angles are congruent?
3. Assume that ABCD is isosceles. What is true about the diagonals?
4. Draw the diagonal from A to C. Is $\triangle ABC \cong \triangle CDA$? Why or why not?
5. Draw the midsegment and label its endpoints E and F.
If $AB = 10$ and $CD = 16$, what is EF?

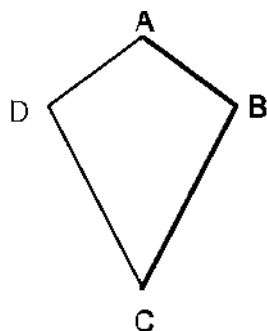
Name _____

Period _____

Warm-up 30

Kites

Date _____ Score _____



1. In kite ABCD, name the pair of angles that are congruent.
2. Name the sides that are congruent.
3. What is true about the diagonals of the kite?
4. Draw in the diagonals. Label the intersection point E.
What is true about \overline{DE} and \overline{EB} ?
5. Why is $\triangle ABC \cong \triangle ACD$?

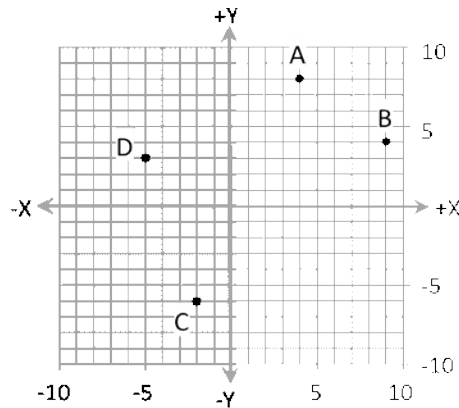
Name _____

Period _____

Warm-up 31

Distance and Quadrilaterals.

Date _____ Score _____



What is the distance between each of the following

pairs of points:

1. A and C?

2. B and D?

3. A and D?

4. B and C?

5. If the points are connected starting at A and going clockwise the figure that is formed is a trapezoid. Find the length of the midsegment?

Name _____

Period _____

Warm-up 32

Triangles and Quadrilaterals

Date _____ Score _____

The side of a bridge can be represented by the trapezoid UVWY. UVWX and UVXY are congruent rhombi. If $UV = 100$ and $WY = 200$, find the following:

1. How tall is the structure?
2. How long is UX?
3. What is $m\angle UXV$?
4. What is $m\angle UVW$?
5. What is the length of the midsegment?

Name _____

Period _____

Warm-up 33

Date _____ Score _____

Central Angles and arcs

In circle E, $m\angle AEN = 28$, and \overline{JN} is a diameter with $\angle JES$ as a right angle.
Find each of the following:

1. $m\widehat{AN}$
2. $m\widehat{JA}$
3. $m\widehat{JAS}$
4. $m\widehat{NS}$
5. Is \widehat{JAS} a major arc, minor arc, or diameter?

Name _____

Period _____

Warm-up 34

Date _____ Score _____

Central Angles and arcs

In circle C, \overline{IL} is a diameter. $m\angle ICR = x - 2$ and $m\angle RCL = 3x + 6$

1. Find x
2. Find $m\angle ICR$
3. Find $m\widehat{IR}$
4. Find $m\widehat{RL}$
5. Find $m\widehat{ILR}$

Name _____

Period _____

Warm-up 35

Date _____ Score _____

Central Angles and arcs

In circle Q, \overline{CA} is a diameter, and $m\angle CQD = 30^\circ$. Find the following

1. $m\widehat{CD}$
2. $m\widehat{CAD}$
3. $m\widehat{AD}$
4. $m\widehat{DCA}$
5. $m\widehat{CDA}$

Name _____

Period _____

Warm-up 36

Date _____ Score _____

Arclength

Given the circle, and each given measurement, find each *arclength*

Given: $m\angle TEG = 46^\circ$, \overline{TR} is a diameter, $TR = 12$ in., and $m\angle AER = 89^\circ$

Round to the nearest tenth, if necessary

1. \widehat{TG}
2. \widehat{ARG}
3. \widehat{AT}

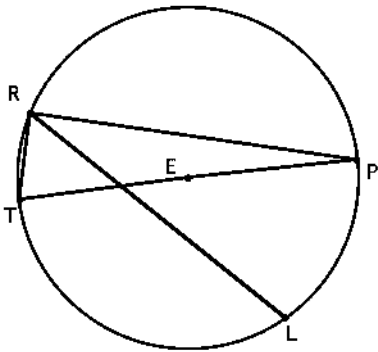
Name _____

Period _____

Warm-up 37

Date _____ Score _____

Arcs and inscribed angles



TP is a diameter of circle C. $m\widehat{PL} = 80^\circ$; and $m\widehat{RP} = 120^\circ$.

1. Find $m\widehat{RT}$
2. Find $m\angle RPT$
3. Find $m\widehat{TL}$
4. Find $m\angle RTP$
5. What type of triangle is $\triangle RTP$?

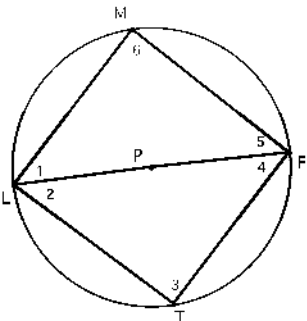
Name _____

Period _____

Warm-up 38

Date _____ Score _____

Arcs and inscribed angles



4. Find $m\angle 3$

5. Find $m\widehat{MF}$

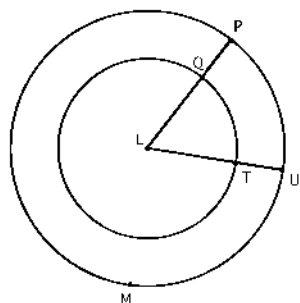
Name _____

Period _____

Warm-up 39

Date _____ Score _____

Circles and angles



L is at the center of two concentric circles. Determine whether each statement is true or false.

Explain your answer.

1. If $m\widehat{QT} = 36^\circ$, then $m\widehat{PMU} = 324^\circ$

2. $\overline{LQ} \cong \overline{UL}$

3. If $m\angle PLU = 51^\circ$, then $m\widehat{QT}$ and $m\widehat{PQ}$ both equal 51°

4. $\overline{PL} \cong \overline{LU}$

Name _____

Period _____

Warm-up 40

Date _____ Score _____

Inscribed angles and intersecting chords

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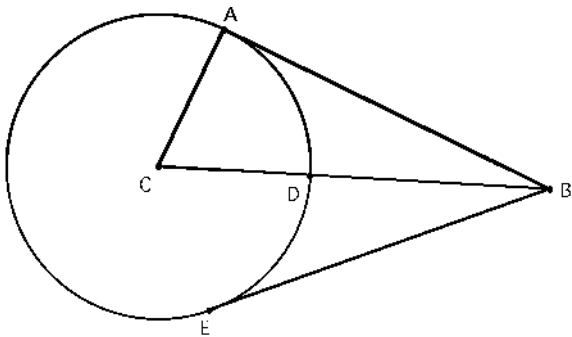
Name _____

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Warm-up 41

Date _____ Score _____

Tangents



Name _____

Period _____

Warm-up 42

Date _____ Score _____

Tangents and secants

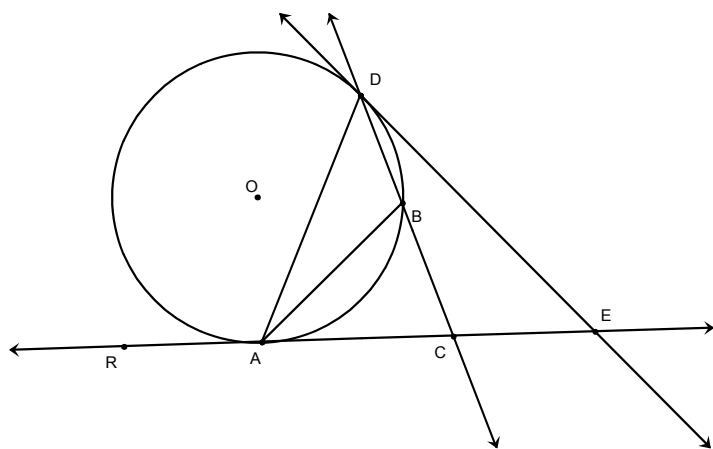
Name _____

Period _____

Warm-up 43

Date _____ Score _____

Tangents, Chords, and secants



AE and DE are tangents to circle O, with chords AB and AD and secant DC.

$m\angle ADB = 76^\circ$ and $m\angle BAC = 32^\circ$. Find:

- $m\angle ADE$
- $m\angle DEC$
- $m\angle ACB$
- $m\angle RAD$
- What type of triangle is VABD?

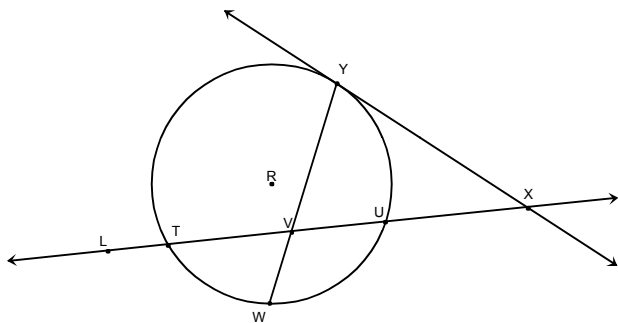
Name _____

Period _____

Warm-up 44

Date _____ Score _____

Tangents, Chords, and Secants



In circle R, YX is a tangent and $XU = 8$, $YX = 12$, and $VW = 3$.

$m\angle YU = 36^\circ$; $m\angle TY = 150^\circ$. Find each of the following:

1. TX
2. TU
3. TV
4. YV
5. $m\angle YXU$

Name _____

Period _____

Warm-up 45

Date _____ Score _____

Equations of circles

Determine the coordinates of the center and the radius for each circle whose equation is given.

1. $x^2 + (y-4)^2 = 36$
2. $(x-8)^2 + (y+7)^2 = 100$
3. $(x+10)^2 + (y-6)^2 = 45$
4. $x^2 + y^2 = 1$
5. Write the equation of the circle whose center is at $(8, -5)$ and whose radius is 25.

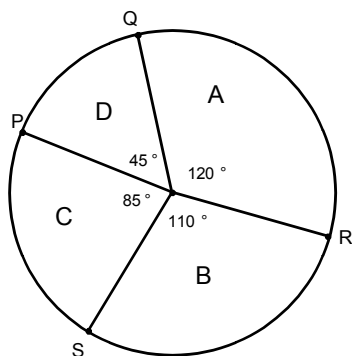
Name _____

Period _____

Warm-up 46

Date _____ Score _____

Sector area



If the radius of this circle is 4 in., find the following areas:

1. Sector A
2. Sector C
3. Sector B
4. Sector D
5. Find the *arclength* of $\overset{a}{QP}$

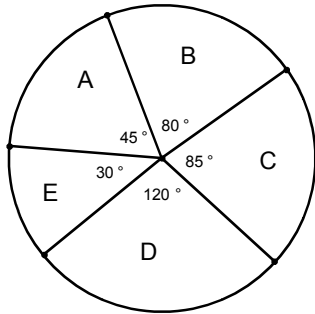
Name _____

Period _____

Warm-up 47

Date _____ Score _____

Geometric probability



1. What is the probability of throwing a dart and having it land in section B?
2. What is the probability of throwing a dart and having it land in section E?
3. What is the probability of throwing a dart and having it land in section A?
4. What is the probability of throwing a dart and having it land in section C?
5. What is the probability of throwing a dart and having it land in section F? (yes, that does say section F)

Name _____

Period _____

Warm-up 48

Date _____ Score _____

Polygons

1. What is the sum of the measures of the interior angles of a hexagon?
2. What is the sum of the measures of the interior angles of a nonagon?
3. What is the sum of the measures of the exterior angles of a 21-gon?
4. What is the sum of the measures of the interior angles of a 33-gon?
5. What is the sum of the measures of the interior angles of a heptagon?

Name _____

Period _____

Warm-up 49

Polygons

Date _____ Score _____

1. What is the measure of an interior angle of a regular pentagon?
2. What is the measure of an interior angle of a regular decagon?
3. What is the measure of an exterior angle of an equilateral triangle?
4. What is the measure of an exterior angle of a square?
5. Suppose the measure of an interior angle of a regular polygon is 156. How many sides does the polygon have?

Name _____

Period _____

Warm-up 50

Polygons and area

Date _____ Score _____

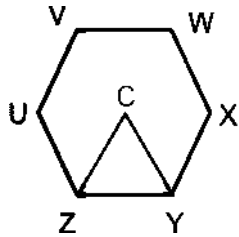
1. What is the area of a square whose side length is 22 in?
2. What is the area of a trapezoid whose bases are 4 cm and 6cm and the height is 5 cm?
3. What is the area of a parallelogram whose base is 10 in and height is 6 in?
4. What is the perimeter of a regular pentagon whose side length is 8 in?
5. What is the area of the regular pentagon from number 4?

Name _____
Period _____

Warm-up 51

Polygons and area

Date _____ Score _____



Given: In hexagon UVWXYZ, $m\angle ZCY = 60^\circ$, and $YZ = 16$.

1. What is the perimeter of $\triangle CYZ$?
2. What is the area of $\triangle CYZ$?
3. What is the apothem of hexagon UVWXYZ? (Hint : Draw the angle bisector of $\angle YCZ$.)
4. What is the perimeter of hexagon UVWXYZ?
5. What is the area of hexagon UVWXYZ?

Name _____
Period _____

Warm-up 52

3-Dimensional Figures

Date _____ Score _____

1. What is the name of the shape that has two congruent parallel triangle bases?
2. How many edges are there in a polyhedron that has 7 faces and 10 vertices?
3. What is the name of the shape that has one circular base?
4. How many faces are there in a polyhedron that has 22 vertices and 30 edges?
5. How many vertices does a polyhedron have if it has 26 faces and 50 edges?

Name _____

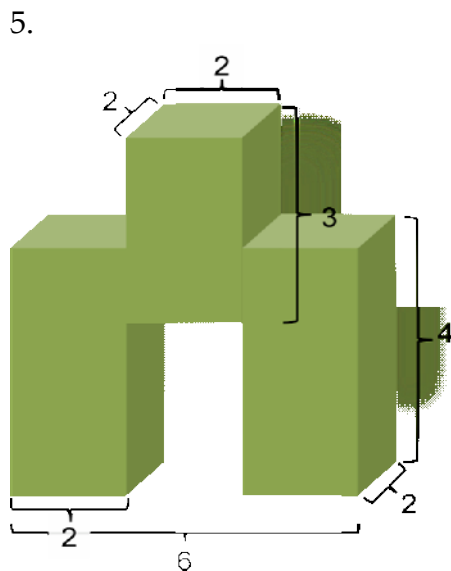
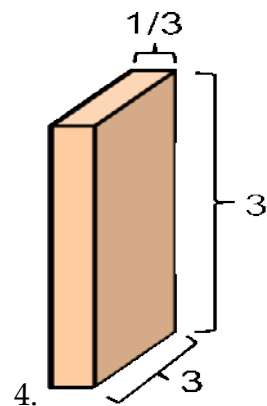
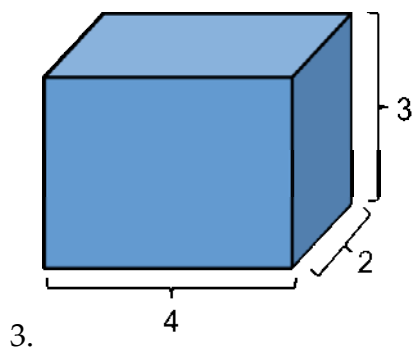
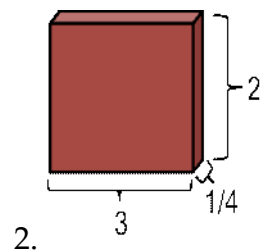
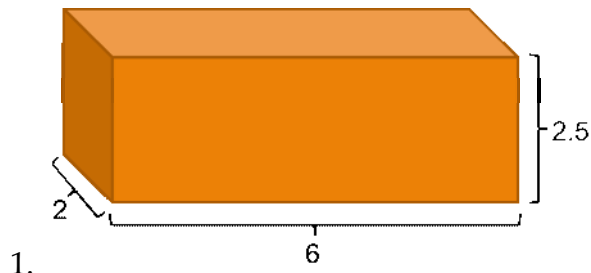
Period _____

Warm-up 53

Surface Area

Date _____ Score _____

Find the surface area of each solid:



Name _____

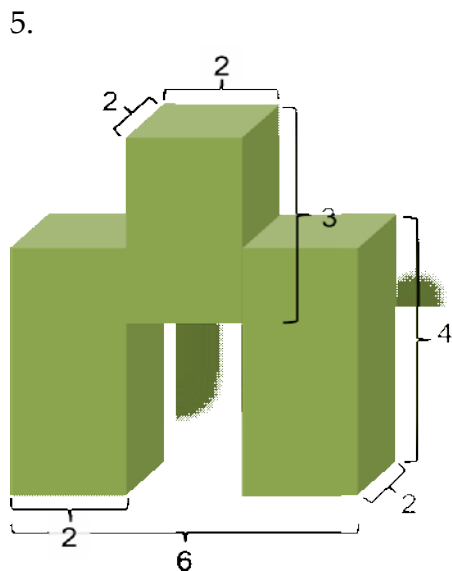
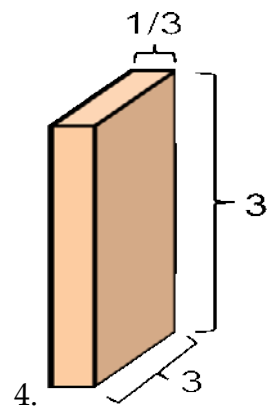
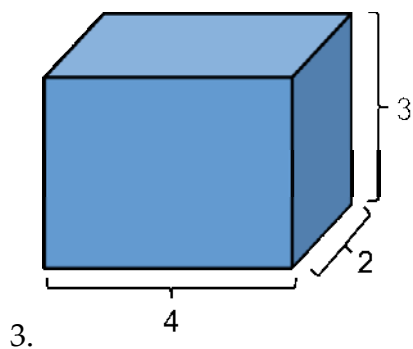
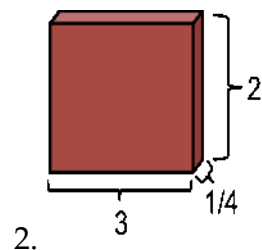
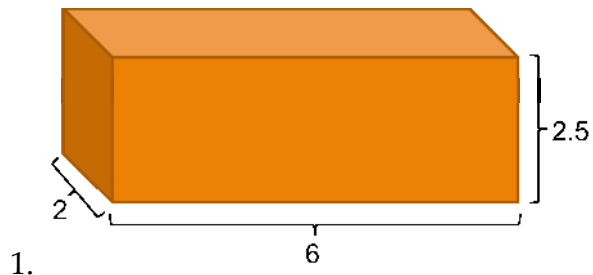
Period _____

Warm-up 54

Volume

Date _____ Score _____

Find the volume of each solid:



Name _____

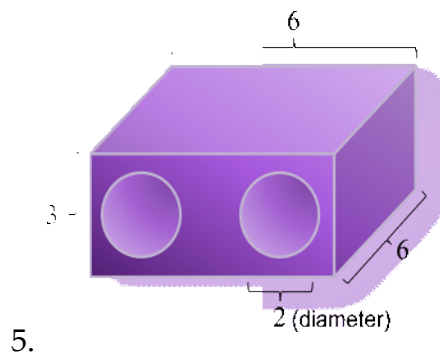
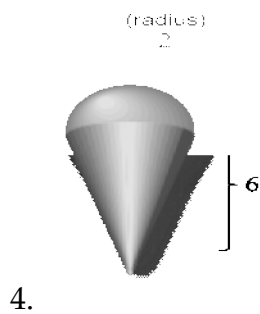
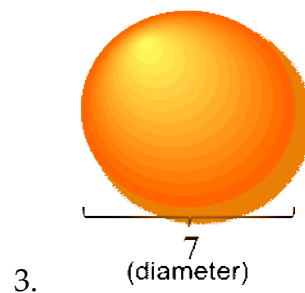
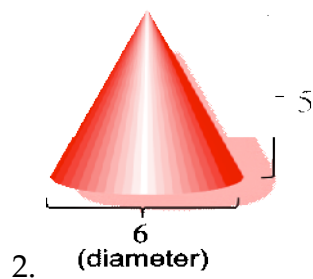
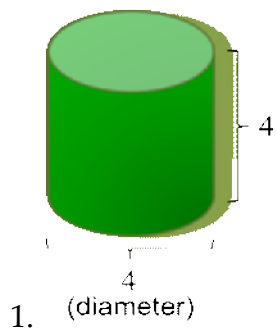
Period _____

Warm-up 55

Volume

Date _____ Score _____

Find the volume of each of the following:



Name _____

Period _____

Warm-up 56

Surface Area

Date _____ Score _____

Find the surface area of each of the following:

